ACTION: Flight Inspection of Minimum Sector Altitude Warning (MSAW/EMSAW)

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We have completed several flight inspections evaluating the Minimum Sector Altitude Warning (MSAW) for Surveillance Radar, Secondary Radar (ATCRBS). Some of the inspections were less than satisfactory do to new mission requirements and pre flight coordination with Air Traffic (AT) and Airway Facilities (AF).

MSAW is a software driven system that is site specific by design. It will generate altitude alerts (MSAW Alarm Points) predicated on a particular digital database specific to a radar control area. Do to the characteristics of the system and unique site adaptation, it is imperative that a thorough pre flight briefing be conducted with the AT and AF principal representatives prior to an inspection. AT should coordinate the flight maneuvers and direct the altitudes to maintain and evaluate. AF and AT jointly determine the operational performance of the system. The flight inspection aircraft is on site as a radar target only.

There is no flight inspection policy established from which to detail procedures or base an application of system performance tolerances. Until Policy is developed, and implemented, the following is offered as operational guidance in the interim:

1. **Pre Flight Coordination**: Conduct a pre flight briefing with the AT and AF representatives prior to beginning an inspection.

    a. Assure the altitudes to be flown and MSAW Altitude Alert Points are clearly defined and understood. This information is specific to the Radar under test (site adaptation)and is provided by AF and AT.

    b. Obtain the correct transponder codes for each specific check in the area to be evaluated

e.g., terminal or approach segment. Codes and flight plans will be confirmed by AT.

c. All flight inspection for MSAW will be conducted in day VFR conditions. Inspections will be scheduled for sufficient advance notice to assure AT and AF have the necessary information and personnel available.

2. **Detailed procedures**: AT should coordinate all flight maneuvers. AT should direct altitudes to maintain and identify the MSAW Alert Point altitude to expect. Confirm positive radar control from the Air Traffic Controller on duty. Perform all checks in Normal/Normal Transponder settings.

a. Descend below MSAW Alert Point altitude between 25 and 30 NM.

b. Perform a rapid descent from an altitude of at least 1000 ft above the MVA, within the service volume of the ASR, to below the MSAW Alert Point altitude.

c. Fly any Standard Instrument Approach Procedures (SIAP) available. On the approach, in the Final Segment, descend the aircraft below the MSAW alarm altitude before reaching 2nm from threshold (MSAW inhibit zone).

The ATCRBS should announce an MSAW (Alert) during any of the above flight/altitude conditions. Notify AT/AF of any deviation to expected facility operational performance. Overall system performance shall not impact flight safety. This will be a determination by the Pilot in Command.

Document inspection results on FAA Form 8240-8, Flight Inspection Report-Surveillance Radar remarks section.

MSAW will be incorporated into FAA Order 8200.1A, Section 215, Surveillance Radar and Air Traffic Control Radar Beacon System (ATCRBS) at the earliest possible date.

ORIGINAL SIGNED BY

John F. Lufkin

CC: AVN-1/2/6/50/200/201/230/260/280
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